



HLA OMT

Baseline Definition

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Background

- The formal definition of the HLA is composed of:
 - **HLA Rules** - A set of rules which must be followed to achieve proper interaction of simulations in a federation execution. These describe the responsibilities of simulations and of the runtime infrastructure (RTI) in HLA federations.
 - **HLA Interface Specification** - Definition of the interface functions between the RTI and simulations participating in HLA federations.
 - **HLA Object Model Template** - Common presentation format for HLA Object Models.



Object Models

- Object models provide an identification of the set of objects chosen to represent the “real world” for a specific application, including:
 - Object characteristics (attributes)
 - Static object relationships (class hierarchies, associations, aggregations)
 - Dynamic object relationships (interactions)
 - Individual object behavior

*Note: HLA Object View does not imply or require object-oriented implementation means



HLA Object Models

- **Federation Object Model (FOM)** - a specification of the exchange of public data among the participants in a HLA federation

Required information

- Object Classes
- Object Interactions
- Attributes/Parameters
- Lexicon

Optional Information

- Object Associations
- Composition Relationships
- Object Model Metadata



HLA Object Models

- **Simulation Object Model (SOM)** - a specification of the capabilities offered to federations by individual simulations
- Same information categories as FOM
- Provides “logical” representation of imported and exported data
- Provides means of judging suitability of simulation systems to participate in HLA federations
 - Facilitated by automated browsing tools (in future) and current data standardization efforts



HLA Object Model Template

- The HLA OMT is a standardized presentation format for describing HLA object models

Rationale:

- Facilitates FOM development coordination
- Provides a common means of describing potential federation members
- Facilitates the design and development of common FOM development toolsets



OMT Development History

- OMT v0.1 Release - July, 1995
 - Baseline framework for FOM construction during HLA prototyping effort
- OMT v0.2 Release - January, 1996
 - Incorporation of HLA Protofederation feedback, based on FOM development experiences
- OMT v0.3 Release - May, 1996
 - Partitioning of required from optional information categories.
Resolution of open issues from OMT V0.2
- OMT v1.0 Release - August, 1996
 - Consistency checking with Interface Specification. More issue investigation/resolution. Reformatting/technical editing



OMT Components

- **Object Class Structure Table**
- **Object Interaction Table**
- **Attribute/Parameter Table**
 - Enumerated Datatype Table
 - Complex Datatype Table
- **FOM/SOM Lexicon**



Object Class Structure Table

Object Class Structure Table			
<class> (<ps>)	[<class> (<ps>)]	[<class> (<ps>)]	[<class> (<ps>)] [,<class> (<ps>)]* [<ref>]
		[<class> (<ps>)]	[<class> (<ps>)] [,<class> (<ps>)]* [<ref>]
	
		[<class> (<ps>)]	[<class> (<ps>)] [,<class> (<ps>)]* [<ref>]
	[<class> (<ps>)]	[<class> (<ps>)]	[<class> (<ps>)] [,<class> (<ps>)]* [<ref>]
	
		[<class> (<ps>)]	[<class> (<ps>)] [,<class> (<ps>)]* [<ref>]

<class> (<ps>)	[<class> (<ps>)]	[<class> (<ps>)]	[<class> (<ps>)] [,<class> (<ps>)]* [<ref>]
		[<class> (<ps>)]	[<class> (<ps>)] [,<class> (<ps>)]* [<ref>]
	
...
Air Vehicle(S)	Fixed Wing (S)	Fighter-Attack (S)	F-14 (PS)
			F-16 (PS)
			F-18 (PS)
		Bomber (S)	B-1B (PS)
			B-2 (PS)
	Rotary Wing (PS)		



Object Interaction Table

Object Interaction Table							
Interaction Structure	Initiating Object		Receiving Object/Area		Interaction Parameters	Init/Sense/React	
	Class	Affected Attributes	Class	Affected Attributes			
<Interaction>	[<Interaction>]	<class> [,<class>]*	[<attribute> [,<attribute>]* [,<comment>]*]	<class> [,<class>]*	[<attribute> [,<attribute>]* [,<comment>]*]	[<parameter> [,<parameter>]*]	<isr>
	
	[<Interaction>]	<class> [,<class>]*	[<attribute> [,<attribute>]* [,<comment>]*]	<class> [,<class>]*	[<attribute> [,<attribute>]* [,<comment>]*]	[<parameter> [,<parameter>]*]	<isr>
	
<Interaction>	[<Interaction>]	<class> [,<class>]*	[<attribute> [,<attribute>]* [,<comment>]*]	<class> [,<class>]*	[<attribute> [,<attribute>]* [,<comment>]*]	[<parameter> [,<parameter>]*]	<isr>
	
Weapon Detonate	Weapon Detonate At Air Target	Weapon	Velocity Acceleration Weight : :	Air Vehicle	Velocity Acceleration Weight : :	Weapon Location, Warhead, Weapon Attitude : :	IR
	Weapon Detonate At Ground Target



Attribute/Parameter Table



Enumerated Datatype Table

Enumerated Datatype Table		
Identifier	Enumerator	Representation
<datatype>	<enumerator>	<integer>

<datatype>	<enumerator>	<integer>

...
Wh_type	Blast	1
	Fragmentation	2
	Shaped-Charge	3



REF ID: A65432

Complex Datatype Table

OMT Complex Datatype Table							
Complex Datatype	Field Name	Datatype	Cardinality	Units	Resolution	Accuracy	Accuracy Condition
<complex datatype>	<field>	<datatype>	<size>	<units>	<resolution>	<accuracy>	<condition>

	<field>	<datatype>	<size>	<units>	<resolution>	<accuracy>	<condition>
...

<complex datatype>	<field>	<datatype>	<size>	<units>	<resolution>	<accuracy>	<condition>

Rectng_type	X	RTI_Float	1	meters	1 meter	2 meters	DR#2
	Y	RTI_Float	1	meters	1 meter	2 meters	DR#2
	Z	RTI_Float	1	meters	1 meter	2 meters	DR#2



Related Documents

- **OMT Extensions**: template for describing optional classes of information for HLA object models.
- **FEDEP Model**: a description of the process used to build and execute HLA federations.
- **OMT Use Cases**: a series of case studies illustrating how the HLA FOM development process can be instantiated in varying communities of use.
- DMSO Home Page — <http://www.dmso.mil/>